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[Grass and Forage Plant Investigation.]

NEW SPECIES OF NORTH AMERICAN GRASSES.

In Circular No. 9 of this Division there was published 13 new species of North American grasses belonging chiefly to the genus *Poa*. Circular No. 10 was also technical in its character, being devoted to *Poa fendleriana* and its allies. In the present circular nine new or little known species of grasses are described.

1. **ANDROPOGON TENNESSEENSIS** Scribn. n. comb. (*A. provincialis* var. *tennesseensis* Scribn. Bul. Tenn. Agr. Expr. Sta. 7: 23. 1894.)

Pedicellate spikelet usually hermaphrodite, 8–10 mm. long, the 1st glume lanceolate, acuminate, rounded on the back, 11–13-nerved, apex acute, subaristate or minutely bimucronate, scabrous all over the back and especially on the nerves and margins. Second glume 7–9-nerved, lanceolate, acute or subaristate, scabrous all over the back and ciliate along the hyaline, infolded margins above. Third glume about as long as the outer ones, lanceolate, acute, scabrous on the back above and fimbriate-ciliate along the margins. Fourth glume shorter than the third, apex bifid, ciliate on the margins above, awned. Awn slender, a little twisted, 2–4 mm. long. Palea $\frac{1}{2}$ as long as its glume. Stamens and pistil as in the sessile spikelet. Sessile spikelet about 8–10 mm. long, more than twice as long as the pedicels. First glume rigid and very rough-scabrous all over the back, ciliate-scabrous along the keels above. Second glume compressed and strongly keeled, long-acuminate pointed, scabrous on the sides and very rough on the keels, ciliate on the narrowly inflexed margins above. Third glume a little scabrous on the back above. Racemes as in *A. provincialis*. Hairs on pedicels and joints yellow, Pedicels and outer glumes very rough scabrous.

Open fields, Knoxville, Tenn. Rare.

2. **PUCCINELLIA SIMPLEX** Scribn., sp. nov. (Fig. 1.)

A slender, densely caespitose, erect or spreading, glabrous annual, 0.5–2 dm. high, usually branching near the base, with soft, narrow leaves and simple, racemose panicles 2–8 cm. long. Sheaths loose or somewhat inflated, mostly longer than the internodes; ligule 2.5–3.5 mm. long, acute, hyaline; leaf-blade 2–3.5 cm. long, flaccid, 1–2 mm. wide, minutely scabrous toward the apex, otherwise glabrous. Spikelets solitary, or 2–3 on short, appressed branches, 2–3 flowered, about 5 mm. long, with unequal, acute, glabrous empty glumes, the second one 3-nerved, and acuminate flowing glumes which are 5-nerved, pubescent on the back and 3–3.5 mm. long.

Woodland, California, collected by J. W. Blankinship, May 6, 1893. This species is entirely distinct from any other with which I am acquainted. Its slender, somewhat wiry culms, rigid, strict panicles and pubescent, acute flowering glumes are its most striking characters.

3. **DISTICHLIS TEXANA** Scribn., n. comb. (*Poa texana* Vasey, Contrib. Nat'l. Herb. 1: 60, 1890; *Sieglungia wrightii* Vasey 1. c., 269, 1893).

A rather stout, rigid, glabrous, creeping perennial, the upright branches 3–6 dm. high, with flat leaves and densely flowered, narrow panicles 10–20 cm. long. Staminate spikelets compressed, 5–7-flowered; pistillate spikelets, subterete,

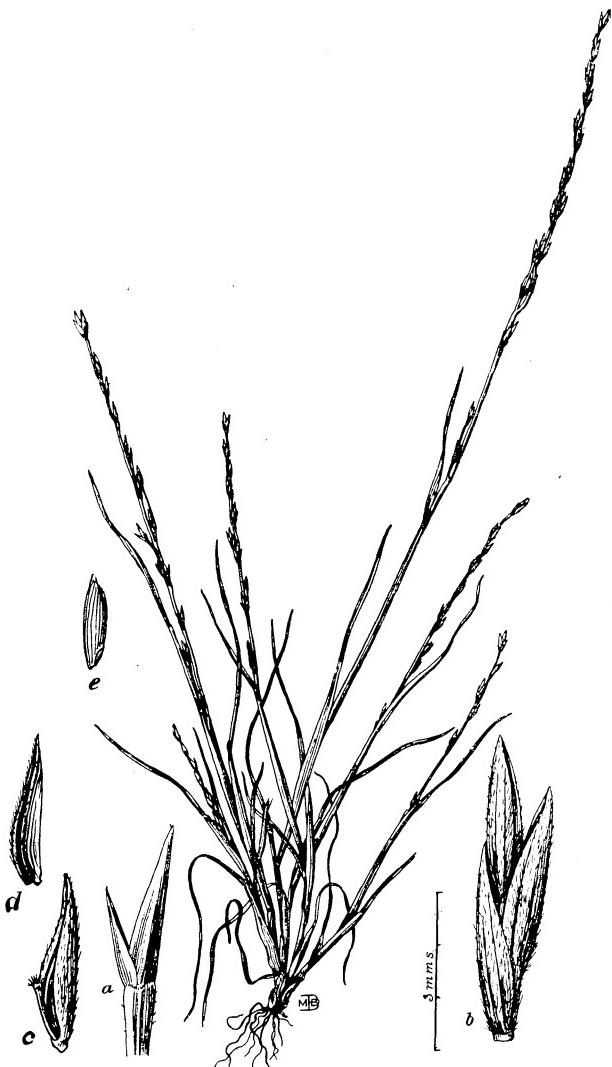


FIG. 1.—*Puccinellia simplex* Scribn. *a*, A portion of the axis with the empty glumes; *b*, Spikelet, empty glumes removed; *c*, Floret, showing a portion of the rachilla; *d*, Palea; *e*, Grain.

fusiform, 12–25 mm. long. Western Texas, New Mexico (1038, C. Wright). [Mexico, No. 507, E. Palmer, 1898.]

The dioecious habit, the character of the inflorescence, the rigid subcoriaceous glumes, long-exserted styles protruding from the apex of the floret, and grain inclosed in the coriaceous base of the palea, clearly connect this grass with *Distichlis*.

4. **POA CURTIFOLIA** Scribn., sp. nov.

A slender, densely cæspitose, upright perennial 1-3 dm. high, with short, but strong, creeping root-stocks, flat leaves and narrow panicles 4-8 cm. long. Sheaths rather loose, glabrous; ligule 3-5 mm. long, lanceolate, hyaline, acute; leaf-blades 1-4 cm. long, those of the culm usually 1-2 cm. long, 2-3 mm. wide, scabrous on both sides and along the margins, especially near the involute and somewhat hooded apex, uppermost leaf often very short or nearly wanting. Spikelets about 8 mm. long, 3-5-flowered, usually 3-flowered; empty glumes broadly lanceolate, acute, 3-nerved nearly equal, the first 5-6 mm. long; florets rather remote on a slender, naked rachilla; first flowering glume, about 6 mm. long, broadly lanceolate or oblong, acute, 5-nerved, glabrous. Palea a little shorter than its glume, ciliate-scabrous along the keels excepting near the base. Mount Stuart, Kittitas County, Washington, August, 1898, Nos. 1148 and 1150 A. D. E. Elmer.

This species is remarkable for its short, blunt leaves resembling those of the *Poa alpina*, from which, however, it is at once distinguished by the characters presented by its spikelets.

5. **DACTYLOCTENIUM AUSTRALIENSE** Scribn., sp. nov. (Fig. 2.)

A cæspitose, diffusely spreading, more or less branching annual, 1.5-2 dm. high, with short, loose sheaths, flat leaves, and short spikes at the apex of the culm or its branches. Culm and sheaths glabrous. Ligule short, ciliate-fringed; leaf-blade 5-10 cm. long, flat, acute, ciliate on the margins near the base, with a few scattering hairs on both surfaces springing from white papillæ. Spikes 3-6, 0.5-1 cm. long, densely crowded so that the inflorescence appears capitate. Axis of the spikelets projecting a little beyond them, strongly ciliate-scabrous on the keel and margins, which are white—the intermediate space on either side being green. Spikelets 2-3-flowered, about 4 mm. long. Second empty glume oblong, broadly obtuse, with a scabrous awn about 1 mm. long. First flowering glume about 3 mm. long, 3-nerved, strongly keeled scabrous toward the apex, which is shortly acuminate-pointed.

Cultivated from seed collected in Oodudatta, South Australia, received from A. Molineaux.

Chiefly distinguished from *Dactyloctenium aegyptiacum* by its more cæspitose and more depressed habit of growth, and especially by its much shorter spikes, which are crowded into nearly globular heads at the apex of the culms. The whole plant is also more slender and the axes of the spikes are distinctly winged-margined.

6. **PANICUM OVINUM** Scribn. and Smith, sp. nov.

A slender, erect or ascending, cæspitose perennial, 3-4 dm. high. Nodes 4 or 5, glabrous, sheaths closely enveloping and shorter than the internodes, ciliate on the overlapping margins above, otherwise smooth. Ligule a line of white hairs about 1 mm. long. Culm leaves rather rigid, linear-acuminate, 7-9 cm. long, 2-4 mm. wide, ascending, glabrous beneath, scabrous on the margins toward the apex, closely striate, but without prominent lateral nerves or midrib except at the base below, basal leaves lanceolate, acute, 4-5 cm. long, 6-8 mm. wide. Panicles terminal, 5-8 cm. long, shortly exserted, few-flowered; branches flexuous, single or in pairs, ascending; pedicels widely varying in length. Spikelets about 2 mm. long, elliptical-obovate, obtuse; first empty glume less than one-fourth the length of the spikelet, broadly ovate, obtuse, glabrous; second and third glumes obovate, obtuse, prominently 7-nerved and minutely pubescent between the nerves. Flowering glumes nearly 2 mm. long, elliptical, ovate, obtuse, with a conspicuous depression near the base.



FIG. 2.—*Dactyloctenium australiense* Scribn.—*a*, Empty glumes; *b*, Spikelet with empty glumes removed; *c*, Palea; *d*, Spikelet of *D. egyptiacum*; *e*, Axis of spike; *f*, Axis of spike of *D. egyptiacum*.

Type collected by F. W. Thurow, Waller County, Texas, May 25, 1898. Closely related to *Panicum angustifolium* Ell., from which it is distinguished by its much smaller and minutely pubescent spikelets and the smooth sheaths and leaves.

7. PANICUM INFLATUM Scribn. & Smith, sp. nov.

An erect or ascending, much-branched perennial, 2.5-4 dm. high, often rooting at the lower nodes, with glabrous culms, pubescent nodes, loose or inflated sheaths, lanceolate, spreading, obtuse leaves 5-7 cm. long, and ovate-pyramidal, exserted, rather densely flowered panicles 6-7 cm. long. Sheaths longer than the internodes, ciliate-pubescent along the margins and tuberculate-dotted between the striæ; leaf-blades 8-10 mm. wide, abruptly rounded at the base, very smooth on the back, scabrous on the margins and along the nerves above. Axis of the panicle slender and the flexuous branches sparingly glandular viscid. Spikelets 1.3 mm. long, broadly obovate, or nearly spherical. First empty glume ovate, obtuse, less than one-fourth the length of the spikelet; second and third empty glumes orbicular, obovate, obscurely 5-7-nerved, the second a little shorter than the broadly ovate, obtuse, flowering glume, which is equaled by the third; the culms, sheaths, and empty glumes are purple.

Type No. 4632, S. M. Tracy, collected at Biloxi, Miss., October, 1898. Closely related to *Panicum lindheimeri* Nash and resembling it in both the form of the panicle and the spikelets, but readily distinguished by its tuberculate, inflated sheaths, glandular panicle-branches, and obtuse leaves.

8. PANICUM THUROWII Scribn. & Smith, sp. nov.

A rather stout, erect or ascending, pubescent or villous, simple or sparingly branched perennial, 3-4 dm. high, with 5-6 densely white-bearded nodes, sparingly villous sheaths, lanceolate-linear leaves 7-10 cm. long, and ovate-pyramidal, shortly exserted panicles, 7-8 cm. long. Sheaths shorter than the villous internodes, striate and tuberculate above between the striæ; ligule a ring of stiff, white hairs 3-4 mm. long; leaf-blades flat, 7-10 mm. wide, softly pubescent on the lower surface, glabrous above, unusually ciliate on the scabrous margins toward the base. There is a very densely villous line on the back where the blade joins the sheath. Axis of the panicle sparingly pilose; the branches subflexuous, villous at the base. Spikelets narrowly elliptical, obtuse, 1.5-2 mm. long. First glume one-fifth the length of the 7-nerved, pubescent and obtuse second and third glumes which are slightly shorter than the lanceolate-elliptical, acute floral glume.

This species is named for Mr. F. W. Thurow, by whom it was collected in Waller County, Texas, June 5, 1898, No. 9. No. 11 collected May 10 is the same species.

Very closely related to *Panicum pubescens* Lam., differing in its more densely flowered, narrower panicles, smoother spikelets and simple culms. The leaves and spikelets are purplish.

Also collected by H. W. Ravenel, Houston, Texas, 1869.

9. PANICUM OCTONODUM Scribn. & Smith, sp. nov.

A slender, ascending, unbranched, glabrous perennial 4-6 dm. high, with 8 or 9 brownish, smooth nodes, rigid, linear, acuminate, ascending or spreading, flat leaves, 5-10 cm. long, and exserted, rather densely flowered, narrowly pyramidal panicles 5-12 cm. long. Sheaths shorter than the internodes, sparingly ciliate on the overlapping margin above; ligule a dense fringe of white hairs, about 1 mm. long; leaf-blades 4-7 mm. wide, obscurely 9-nerved below, scabrous on the margins, acute. Axis of the panicle smooth,

branches subflexuous, solitary, often fasciculately branched just above the base. Spikelets 1.5 mm. long, elliptical ovate, obtuse, first empty glume minute, the faintly 5-7-nerved, obtuse second and third glumes slightly exceeded by the obtuse, perfect floret.

Waller County, Texas. Collected by F. W. Thurow, May 5, 1898.

Closely related to *Panicum nitidum* Lam., from which it may be separated by the greater number of nodes of the culm, the smooth leaves and sheaths, and the glabrous spikelets. No. 565 Lindheimer (1846) approaches this in habit and leaf characters, but has the ovate, obtuse panicles abruptly rounded at the base, the branches horizontal and more flexuous, and the minutely puberulent second and third empty glumes exceeded by the flowering glume.

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Approved:

JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., June 16, 1899.

